

# **Appendix E**

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## 1.0 POLICY

1.1 The purpose of this procedure is to establish a standard method to determine and record the constituents of waste streams, to ensure their proper classification as well as to ensure a standardized practice for hazardous waste container handling, storage, and accumulation periods. No waste shall be stored, treated, or disposed without following this written plan. Certain sections of this procedure will not apply if the amount of hazardous waste generated at FPC-DE exceeds regulatory thresholds and more stringent requirements apply.

1.2 The Waste Analysis & Management Procedure is designed to accomplish the following:

- Notification to the Environmental Department that a new waste stream exists and of the need for it to be analyzed and classified.
- Provide a physical description of the waste and to determine if sampling is necessary.
- Establish coordination between the Environmental Department and the plant sections for waste analysis. Establish and maintain a standardized record of all waste streams generated at the facility.
- Document analytical results or process knowledge used to classify any waste stream. Classify a waste stream appropriately based on its physical makeup and/or analytical data.
- Determine the proper method for waste disposal and management pending disposal.

Agency Authority	Law	Regulation/Permit/Consent Agreement
Environmental Protection Agency	Resource Conservation and Recovery Act (RCRA)	40 CFR Parts 261, 279
DNREC	Delaware Hazardous Waste Act	DRGHW 261, 279

## 2.0 SCOPE

2.1 This procedure applies to waste, or waste like materials, generated at FPC-DE that may be disposed, stored, treated, recycled, or otherwise subject to DRGHW regulation. This procedure applies equally to liquid, solid, and semi-solid wastes. The facility may deviate from the requirements of this plan when responding to an imminent and substantial threat of a discharge of a hazardous waste or material.

## 3.0 RESPONSIBILITY

3.1

3.2

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3.3

## 4.0 FLOW CHART - NONE

**Common Terms for  
Waste Analysis and Management**

1. **Analysis:** any activity that determines the appropriate classification of a waste included but not limited to materials such as solid, hazardous, industrial, etc. Such activities include laboratory testing and use of process knowledge.
2. **Accumulation Date:** the date on which a hazardous waste container is full and is ready to be transported to the Plant Storage Area.
3. **Composite Sampling:** the obtaining of several different samples and combining them to form one sample.
4. **Conditionally Exempt Small Quantity Generator:** a generator who generates less than 100 kilograms (220 pounds) of hazardous waste or 1 kilogram of acute hazardous waste in a calendar month.
5. **Corrosive:** an aqueous material that has a pH less than or equal to 2 or greater than or equal to 12.5; or a liquid that corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) (See 40 CFR Part 261, Subpart C for applicable regulatory testing methods);
6. **Container:** any portable device in which material is stored, transported, treated, disposed of, or otherwise handled.
7. **Dike:** an embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludge, solids, or other materials.
8. **Disposal:** the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste, or any constituent thereof, may enter the environment or be emitted into the air or discharged into any waters, including ground waters.
9. **Disposal Facility:** a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which the waste will remain after closure.
10. **Discrete Sampling:** the sampling of a waste stream at a single location or depth or from a single source;
11. **Ignitable:** a liquid, other than an aqueous solution containing less than 24% alcohol and has

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flash point of less than 60°C (140°F); a non-liquid capable, under standard temperature and pressure, of causing fire through friction, adsorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that creates a hazard; an ignitable compressed gas as defined in 49 CFR Part 173; or an oxidizer as defined in 49 CFR Part 173 (See 40 CFR Part 261, Subpart C for applicable regulatory testing methods);

12. **Manifest:** the shipping document EPA Form 8700-22 and, if necessary, EPA Form 8700-22A, originated and signed by the generator in accordance with the instructions included in the Appendix to 40 CFR Part 262.
13. **Plant Storage Area or Hazardous Waste Storage Area or Storage:** a contiguous area of land on or in which hazardous waste is placed.
14. **Process Knowledge:** documented knowledge about a process, from such sources as material safety data sheets, flow charts, design data, published literature, documented knowledge about similar operations, product bulletins, etc.;
15. **Reactive:** a material exhibits the characteristic of reactivity if a representative sample has any of the following properties:
  - normally unstable and readily undergoes violent change without detonation;
  - reacts violently with water;
  - forms potentially explosive mixtures with water;
  - when mixed with water, generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment;
  - a cyanide or sulfide bearing material which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment;
  - capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement; or
  - a forbidden explosive, Class A explosive or Class B explosive as defined in 49 CFR Part 173. (See 40 CFR Part 261, Subpart C);
16. **TCLP:** Toxicity Characteristic Leaching Procedure; Test Method 1311 as published in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, and incorporated by reference in §260.11 of the RCRA regulations. (see list of constituents of concern at the end of the procedure);
17. **Waste:** discarded materials resulting from industrial and chemical operations. Waste may include garbage, refuse, sludge, by-products of chemical processes or wastewater treatment, spills, leaks, plant demolition debris, equipment fluids, or soil excavations;
18. **Waste analysis data form:** an environmental form used to summarize information about a waste. The form is used to initiate the process of waste determination and to provide basic information to allow the material to be properly profiled by the Environmental Manager and the disposal facility.

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## 5.0. REFERENCE

- 5.1 XXXXX.XXX Universal Waste Procedure
- 5.2 OM-130.551 Sludge Super Sack Storage
- 5.3 Code of Federal Regulations Title 40 Part 261 (Identification and Listing of Hazardous Wastes), and Part 262 (Standards Applicable to Generators of Hazardous Wastes); Delaware Regulations Governing Hazardous Waste, Part 268 (Land Disposal Restrictions).
- 5.4 EPA Guidance Manual: Waste Analysis at Facilities that Generate, Treat, Store and Dispose of Hazardous Waste, PB 94-963603, April 1994.

## 6.0 PROCEDURE

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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6.1.6 Record Keeping

6.1.6.1 Records of all waste analyses must be maintained in a dedicated system (either manual or electronic) [REDACTED] for a period of no less than 3 years from the date that the waste was last sent to treatment, storage or disposal. NOTE: The system that the Environmental Department selects to use must be immediately accessible by department personnel when questions of waste analysis arise.

6.1.6.1.1 No waste analysis record of an existing waste stream will be destroyed without a more recent analysis report being on file for the waste stream.

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

## 7.0 REVIEW SCHEDULE

7.1 This procedure will be reviewed as necessary

## 8.0 RECORDS

8.1 Records of changes to this procedure will be kept in the Revision Log. Changes greater than three years (3) old may be dropped from the log.

## 9.0 ATTACHMENTS

9.1 Waste Analysis Data Form

9.2 Appendix A: Form 1 - Weekly Storage Area Inspection Form  
Form 2 - Hazardous Waste Container Issuance Form

## 10.0 REVISION LOG

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## **Attachment #1**

[illegible]

Date:

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# **CONSTITUENTS OF CONCERN AND THEIR MAXIMUM LEACHABLE CONCENTRATIONS**

Circle the compound known to be in the waste. Enter the concentration in ppm, if known, and enter a range if needed.

Compound	CAS No.	Concentration (mg/l)	Known Concentration	Range
# Acenaphthene	83-32-9	210		
Acetone	67-64-1	400		
Acetonitrile	75-05-8	20		
Acetophenone	98-86-2	400		
Acrylamide	79-06-01	0.08		
Acrylonitrile	107-13-1	0.6		
Aniline	62-53-3	60		
# Anthracene	120-12-7	1050		
Antimony	7440-36-0	1		
Arsenic	7440-38-2	1.8		
Barium	7440-39-3	100.0		
Benzene	71-43-2	0.50		
Benzidine	92-87-5	0.002		
Beryllium	7440-41-7	0.08		
Bis (2-chloroethyl) ether	111-44-4	0.3		
Bis (2-ethylhexyl) phthalate	117-81-7	30		
Bromodichloromethane	75-27-4	0.3		
Bromomethane	74-83-9	5		
Butylbenzyl Phthalate	85-68-7	700		
Cadium	7440-43-9	0.5		
Carbon Disulfide	75-15-0	400		
Carbon Tetrachloride	56-23-5	0.50		
Chlordane	57-74-9	0.03		

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Compound	CAS No.	Concentration (mg/l)	Known Concentration	Range
Chlorobenzene	108-90-7	70		
Chloroform	67-66-3	6.0		
#Chloro-m-cresol,p	59-50-7	7000		
2-Chlorophenol	95-57-8	20		
Chromium	7440-47-3	5.0		
m-Cresol	108-39-4	200.0*		
o-Cresol	95-48-7	200.0*		
p-Cresol	106-44-5	200.0		
DDD	72-54-8	1		
DDE	72-55-9	1		
DDT	50-29-3	1		
Dibutyl Phthalate	84-74-2	400		
1,4-Dichlorobenzene	106-46-7	7.5		
3,3-Dichlorobenzidine	91-94-1	0.8		
1,2-Dichloroethane	107-06-02	0.50		
Dichlorodifluoromethane	75-71-8	700		
1,1-Dichlorethylene	75-35-4	0.6		
1,3-Dichloropropene	542-75-6	1		
2,,4-Dichlorophenol	120-83-2	10		
2,4-Dichlorophenoxy-acetic acid (2,4-D)	94-75-7	10.0		
Dieldrin	60-57-1	0.02		
Diethyl Phthalate	84-66-2	3000		
Dimethoate	60-51-5	70		
#2,4-Dimethylphenol	105-67-9	70		
#2,6-Dimethylphenol	576-26-1	21		
m-Dinitrobenzene	99-65-0	0.4		

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Compound	CAS No.	Concentration (mg/l)	Known Concentration	Range
2,4-Dinitrophenol	51-28-5	7		
2,4-Dinitrotoluene (and 2,6-, mixture)	602-01-7	0.13		
# Dinoseb	88-85-7	3.5		
1,4-Dioxane	123-91-1	30		
Dioxins (Poly chlorinated dibenzo-p-dioxins)				
2,3,7,8-TCDD	1746-01-6	0.005		
1,2,3,7,8-PeCCD	40321-76-4	0.010		
1,2,3,4,7,8-HxCDD	57653-85-7	0.050		
1,2,3,6,7,8-HxCDD	34465-46-8	0.050		
1,2,3,7,8,9-HxCDD		0.050		
Diphenylamine	122-39-4	90		
1,2-Diphenylhydrazine	122-66-7	0.4		
Disulfoton	298-04-4	0.1		
Endosulfan	959-98-8	0.2		
Endrin	72-20-8	.02		
#2-Ethoxyethanol	110-80-5	1400		
Ethylbenzene	100-41-4	400		
Ethylene Dibromide	106-93-4	0.004		
# Ethylene Glycol	107-21-1	7000		
# Fluoranthene	206-44-0	140		
#Fluorene	86-73-7	140		
Furans(Polychlorinated dibenzo furans)				
2,3,7,8-TCDF	51207-31-9	0.050		
1,2,3,7,8-PeCDF		0.100		
2,3,4,7,8-PeCDF		0.010		



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Compound	CAS No.	Concentration (mg/l)	Known Concentration	Range
1,2,3,4,7,8-HxCDF		0.050		
1,2,3,6,7,8-HxCDF		0.050		
1,2,3,7,8,9-HxCDF		0.050		
Heptachlor (& its hydroxide)	76-44-8	0.008		
Heptachlor Epoxide	1024-57-3	0.04		
Hexachlorobenzene	118-74-1	0.13		
Hexachloro-1,3-butadiene	87-68-3	0.4		
Hexachlorocyclopentadiene	77-47-4	20		
Hexachloroethane	67-72-1	3.0		
Hexachlorophene	70-30-4	1		
Isobutyl Alcohol	78-83-1	1000		
Isophorone	78-59-1	90		
Lead	7439-92-1	1.5		
Lindane	58-89-9	0.3		
Mercury	7439-97-6	0.2		
Methacrylonitrile	126-98-7	0.4		
Methomyl	16752-77-5	90		
Methoxychlor	72-43-5	10.0		
#2-Methoxyethanol	109-86-4	14.0		
Methyl Ethyl Ketone	78-93-3	200.0		
Methyl Isobutyl Ketone	108-10-1	200		
Methylene Chloride	75-09-2	50		
Methyl Parathion	298-00-0	.09		
#Mirex	2385-85-5	0.7		
Nickel	7440-02-0	70		
Nitrobenzene	98-95-3	2.0		

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Compound	CAS No.	Concentration (mg/l)	Known Concentration	Range
N-Nitroso-di-n-butylamine	924-16-3	0.06		
N-Nitrosodiphenylamine	86-30-6	70		
N-Nitrosomethylethylamine	10595-95-6	0.02		
N-Nitroso-n-propylamine	621-64-7	0.05		
N-Nitrosopyrrolidine	930-55-2	0.2		
p-Phenylene Diamine	106-50-3	20		
Parathion	56-38-2	20		
Pentachlorobenzene	608-93-5	3		
Pentachloronitrobenzene	82-68-8	10		
Pentachlorophenol	87-86-5	1000		
Phenol	108-95-2	2000		
Pronamide	23950-58-5	300		
# Pyrene	129-00-0	5.9		
Pyridine	110-86-1	4		
Selenium	7782-49-2	1.0		
Silver	7440-22-4	5.0		
Styrene	100-42-5	700		
1,1,1,2-Tetrachloroethane	630-20-6	10		
1,1,2,2-Tetrachloroethane	79-34-5	2		
Tetrachloroethylene	127-18-4	0.7		
2,3,4,6-Tetrachlorophenol	58-90-2	100		
Toluene	108-88-3	1000		
Toxaphene	8001-35-2	0.3		
Trans-1,3-Dichloropropene	542-75-6	1		
Tribromomethane (Bromoform)	75-25-2	70		
1,2,4-Trichlorobenzene	120-82-1	70		

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Compound	CAS No.	Concentration (mg/l)	Known Concentration	Range
1,1,1-Trichloroethane	71-55-6	300		
Trichloroethylene	79-01-6	.5		
Trichlorofluoromethane	75-69-4	1000		
1,1,2-Trichloroethane	79-00-5	6		
2,4,5-Trichlorophenoxy-Propionic Acid (2,4,5 TP or Silvex)	93-72-1	1.0		
1,2,3-Trichloropropane	96-18-4	20		
2,4,5-Trichlorophenol	95-95-4	400.0		
2,4,6-Trichlorophenol	88-06-2	2		
Vanadium Pentoxide	1314-62-1	30		
Vinyl Chloride	75-01-4	0.2		
Xylenes (All Isomers)	1330-82-1	7000		

# = Constituent added since original rule publication.

- = If o-, m-, and p-Crescol concentrations cannot be differentiated, the total cresol concentration is used. The Maximum Concentration for total cresol is 200.0 mg/l.

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## **APPENDIX A**

## DATE:

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## FORM 2 (Optional)

# HAZARDOUS WASTE CONTAINER ISSUANCE LOG

[illegible]